Work Orden March-22-12 4:3				*821	114*			-				Page 1
Revision ID:	D407-667-205			Accept	*N900	<u>040</u>	100	)*	Setup	Start Stop	*N *N	S1* S2*
Start Date: 2 Required Date: 0 Reference:		Qty: 1.00 Qty: 1.00	*1* *1*		Cust Item I Customer:	D:						
Approvals:	Process Plan: ML	.J	Date: 12/03/	22 Tooling:	Da	ate:			Run	Start	*N	R1*
•	QC:	· · · · · · · · · · · · · · · · · · ·	_ Date:	SPC (Y/N):	Da	ate:				Stop	*N	R2*
Sequence ID/ Work Center ID	Operat Descri		<u> </u>	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	t Reje Qty		Reject Number	Insp. Stamp
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*120* CNC Bend 1	BENDIN		- CROSSTUBES	0.00	,					NP.	1/2	-5-2
CNC Delta 100 Bender	r	Memo 1-Bend tub Folio 21	e as per Dwg D407-667-2	0.00 245 using CNC bender prog	ram 407 Aft and		•		,	<b>"</b>	1 60000	_

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Part No	:	PAR #:	Fault Cat	egory:	NC	R: Yes	No <b>DQ</b>	A:	_ Date: _	
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Work Ord March-22-12 4		114		*821	14*		<u> </u>					Page 2	2
Item ID: Revision ID: Item Name:	D407-667-20 Crosstube Aft	)5		Accept	*N900	<b>040</b>	100	)*	Setup	Start Stop		S1* S2*	
Start Date: Required Date: Reference:	22/03/2012 05/04/2012	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item I Customer:	D:					10.		
Approvals:	Process Pla	n:	Date:	Tooling:	Da	ite:			Run	Start Stop	*N	R1*	
	QC:			SPC (Y/N):	Da	ıte:	·			отор	*N	R2*	
Sequence ID/ Work Center II	D	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Re Qt	-	Reject Number	Insp. Stamp	
*130 *130*		QC15- Crosstube Dimen	sional Check	0.00 S.7(w)	<b>/</b> 0-								
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Quality Control

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		Description of NC	1	Corrective Action Section B		Verification	Approval	Annroyal
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### Work Order ID 82114

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\*82114\*

Page 3

Litem ID: D407-667-205 Accept \*N900040100\* Setup Start Revision ID: Item Name: Crosstube Aft Start Date: 22/03/2012 Start Qty: 1.00 **Cust Item ID:** Required Date: 05/04/2012 Req'd Otv: 1.00 **Customer:** Reference: Run Start Process Plan: **Approvals:** Date: Tooling: Date: Stop QC: Date: SPC (Y/N): Date: Sequence-ID/ Operation Set Up/ Tool ID Tool # Plan Reject Accept Reject Insp. Work Center ID Description **Run Hours** Code Otv Otv Number Stamp 0.00 Crosstubes \*140\* Crosstubes 0.00 Memo Crosstubes 1-Drill pilot holes in tube using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Drill all (3) top holes. 2-Drill and Ream all holes in tube to finish size using drill Jig DT8583 & DT8584 as per Dwg D407-667-245Check dimensions between holes on all four 3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins. 4-Drill pilot holes using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Drill only the top (2) holes. 5-Drill & ream the top (2) holes to finish size using drill Jig DT8583 & DT8584 as per Dwg D407-667-245 6-Drill Aft rivet holes using drill Jig DT8789 as per Dwg D407-667-245. Note: Aft side has 3x top holes. 7-Drill Fwd rivet holes using drill Jig DT8789 as per Dwg D407-667-245. Drill only the top (3) holes. 8-C'sink holes as per Dwg D407-667-245. Allow rivet to sit below surface to compensate for paint. 9- Scribe tube to identify on the inner chamfer in the cuff D# and B# 12-5-3 10-Deburr & Inspect for surface damage. Repair damage within limits as per

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Work Ord  March-22-12 4		114			*821	14*							Page 4
Item ID: Revision ID: Item Name: Start Date: Required Date Reference:	D407-667-20 Crosstube Aft 22/03/2012 : 05/04/2012			*1* *1*	Accept	*N900 Cust Item II Customer:		100	)*	Setup	Start Stop	I VI	S1* S2*
Approvals:	Process Pla	n:	Date:		Tooling:	Da	te:	-		Run	Start	*N	R1*
	QC:		Date:_		<b>SPC (Y/N):</b>	Da	te:				Stop	*N	R2*
Sequence ID/ Work Center I  150  *150* HandFXtube Hand Finishing Cro		Operation Description Dwg D407-6 Crosstubes Chemical Con			Set Up/ Run Hours 0.00	Tool ID	Tool#	Plan Code	Accep Qty	t Rej Qty	, I	Reject Number	Insp. Stamp
*160 *160* QC Quality Control		QC3- Inspect Part Finish  Memo			0.00	dus Saluda	,			<del></del>			,
170 <b>*170*</b> QC		QC5- Inspect part comple	eteness to ste	p on W/O	0.00	- 5/05 67/05	les						<u>.</u>

Quality Control

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Work Ord March-22-12 4				*82	114*					,		Page 5
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	QC:		Date:	SPC (Y/N):		ate:				Stop	*N	R2*
Sequence ID/ Work Center II	D	Operation Description Outsource process - ND	Γ per OSI038 4.1	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accep Qty	t Rej Qty		Reject Number	Insp. Stamp
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Outsource process -	NDT	Liquid Pene Issue P/O/ Level 2 Atta	trant Inspection as per QS LPI as per AST ch copy of NDT results to	l 038O M 1417 o work order			.*1	e • <sub>12</sub> .				
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*100* Packaging		Packaging		0.00				2x				500
Packaging		Memo Ensure copy	of NDT results attached t								•	2-5-
200		QC5- Inspect part comple	eteness to step on W/O	0.00						•	_	,
* <b>2</b> 00* QC Quality Control		Memo		0.00				11/	<u> </u>	12	05	-04

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Revision ID:	D407-667- Crosstube A			Accept	*N900	040	100	<b>N</b> *	Setup	Start Stop	*N:	S1* S2*
	22/03/2012 05/04/2012	~ .	*1* *1*		Cust Item Customer:	ID:					IVI.	
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Sequence ID/ Work Center ID 210	·	Operation Description		Set Up/ Run Hours 0.00	Tool ID	Tool#	Plan Code	Accept Qty	Qty	N	Reject Number	Insp. Stamp
*210* SprayPaint Spray Painting		• •			245 1 001 005 42			_A9		<u>,                                     </u>	- 7	
			7:00	Imron as per QSI 005 4		PER USTRUCTION	ьд С.Ч					
220		Start Time: Finish Time: QC14- Inspect Spray Pain	3:45 4:30	clear: 1216 Start: 3:30 Finish: 4:36		412.0	<b>ブ・・</b>	$\Lambda$				
*220* QC Quality Control		Memo Then,Wrap ir	n plastic bag to protect fro	0.00 om scratches				_ 1/		15.	05	<u> 08 (j</u>

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Work Ord  March-22-12 4	1			*821	114*						Page 7
Item ID: Revision ID: Item Name: Start Date: Required Date: Reference:	D407-667  Crosstube 22/03/201 : 05/04/201	Aft 2 Start Qty: 1.00	*1 *1		*N900 Cust Item Customer:	ID:	100	<b>n*</b> •	Setup Sta	I Z	S1* S2*
Approvals:	Process   QC:	Plan:	Date:	Tooling: SPC (Y/N):		ate:		F	Run Sta Sto	" <b>[\]</b>	R1* R2*
Sequence ID/ Work Center II 230	D	Operation Description		Set Up/ Run Hours	Tool ID	Tool#	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
*230* Crosstubes		Crosstubes  Memo	shafina shiald as man D	0.00				AJ	12.	5-10	
Crossianes		up. A/R Pros  2- Lightly with 4105	eal 890 Batch: 12 EXP: 117 scuff the bonded area 8 wash 'n' wipe	using a 320 grit sand paper and	clean the area						
		D407-667	-245 using installaition cotch-Weld DP460 E	eld DP460 and install clamps as n jig DT9025. Torque clampsas Batch: \20398 XP: 14 Mar 2013	per DEO Dwg s per dwg						·
		4-Install ni paint.	ut plates as per Dwg D	407-667-245. Touch-up rivet h	leads with Imron						1 /
240 * <b>74</b> * QC  Quality Control		QC5- Inspect part com	pleteness to step on W	0.00 0.00					<del></del>	W	W 12.05.

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W/O:			W	ORK ORDER CHANG	ES					
Part No:PAR #:Fault Category:NCR: Yes No DQA:Date:NCR:	Approval QC Inspector									
Part No	:	PAR #:	Fault Cate	gory:	NCR:	Yes N	o DQ	<b>\</b> :	Date:	
	R	esolution:	Dispositio	n:	_ QA: N	VC Clos	sed:		Date: _	
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		Description of NC		Corrective Action Section	n Section B Verification Approval					
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Work Order I March-22-12 4:33:0	1	2114		*8211	4*							Page 8
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	ocess Pla	an:	Date:	Tooling: SPC (Y/N):		ate:			Run	Start Stop	"	R1* R2*
Sequence ID/ Work Center ID  250  *250* Packaging Packaging		Operation Description Pick Kit Memo		Set Up/ Run Hours 0.00	Tool ID	Tool#	Plan Code	Accep Qty	t Rej Qty		Reject Number	Insp. Stamp  12/05///
<b>*260 *260*</b> QC Quality Control		QC4-100% Inspect kits i	for completeness	0.00 Sizlistu	{		(	4)				
270 *270* Packaging Packaging		Location:	in kanban rack 53	0.00			(	N)	<u> </u>		<u> </u>   2	5/50

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		Section A	Initial Chief Eng	Action Description Chief Eng	1	Sign & Date	Secti	on C	Chief Eng	QC Inspector	
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Work Orde		114		*821	114*	,		-4				Page 9
Revision ID:	D407-667-20	)5		Accept	*N900	040	100	)*	-	start		S1*
	Crosstube Aft 22/03/2012 05/04/2012	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item l Customer:	D:				Stop	*N:	S2*
Approvals:		n:	Date:	Tooling: SPC (Y/N):		ate:				Start Stop		R1* R2*
Sequence ID/ Work Center ID 280 *280* QC Quality Control		Operation Description QC21- Final Inspection - Memo	Work Order Release	Set Up/ Run Hours 0.00	Tool ID	Tool#	Plan Code	Accept Qty	Qty	2/5	eject umber	Insp. Stamp

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		Description of NC		Corrective Action Section B		Verification	Ammuoval	Annroyal					
DATE	STEP	Section A	Initial Chief Eng	Action Description  Chief Eng	Sign & Date	Section C	Approval Chief Eng	Approval QC Inspector					
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Picklist Print March-22-12 4:33													Page 1
Work Order ID: 8	2114		*	82114	1*							-,	-5
Parent Item: D	407-667-205				-667-2	05*							٠
Parent Item Name:	Crosstube Aft	·	·			. , . ,	<b>.</b>		Start Date: 22/0 Start Qty: 1.00		· ·	ed Date: 05 ed Qty: 1.0	
Comments:	IPP Rev:C 05.09.0 IPP Rev:D Added JLM	2 Add holes for o											
	****CHANGE TO IPP Rev:E 08-05-2 by:EC IPP Rev:F 08-06-1 IPP Rev:G 08-08- IPP Rev H 09.01. 10.04.07 revise rou removed abrasion st by:DD 11.10.03 DEO D40	2 add comment in 2 add comment in 19 revE as per do 06 ECN 08-562 ate seq. in bom DI trip ecn 11-551	n seq. 6 n seq. 2 wg DD EC D verif EC ver	and QC15 and	and QC5 DD ve fied by:EC :EC y:DD IPP Rev	rified			v				
Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D407-667-205TRN  *D407-66  Crosstube Turning Detail	37-205TF	Manufactured <b>RN</b> *	No			110	Each	2.0000	**	1	D	12-5	5-2
2000	-			<u>Locatio</u>	<u>n</u>	Loc	Oty	Loc Code			·		

*D407-667-205TF Crosstube Turning Detail	SN*						**	·	JP12-5-Z
			Location LG 79744	<u>10</u> 319	2 1	Loc Code	(	<u></u>	
*AN960JD516 NAS1149D0563J *AN960.ID516*	Purchased	No	79745	230	l Each	0.0000	**	18	Suc 12/05/14 & M19540
D2873-043 *D2873-043*	Manufactured	No		230	Each	20.0000	2 **	2	Al 12-5-10
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t Plate Assembly

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LG052

Location Loc Oty Loc Code

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### **Picklist Print**

· March-22-12 4:33:14 PM

Page 2

Work Order ID: 82114 \*82114\*

Parent Item: D407-667-205 \*D407-667-205\*

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80162

Location

LG052

Parent Item Name: Crosstube Aft

Start Date: 22/03/2012

**Required Date:** 05/04/2012

Start Qty: 1.00

Required Qty: 1.00

Al 12-5-10

D2873-045

Nut Plate Assembly

D2894-1

2.750 Support

D3190-1 \*D3190-1\*

Chafing Shield

Manufactured

Manufactured

Manufactured

No

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230

Each

Loc Qty

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Loc Code

Each 5.0000

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12.05.08

Loc Qty Location Loc Code LG052 5 75212 5 230 Each 49.0000

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12-5-10

Location Loc Qty Loc Code LG053 23 75947 23 LG055 26 26

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DATE	CTED	Description of NC	Corrective Action Section				Verific	ation	Approval	Approval
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Work Order ID: 82114		*8	2114*		<del></del>					
Parent Item: D407-667-2	205			37-205*						
Parent Item Name: Crosstu	ibe Aft		<b>4</b> ()/ -()(	17-2(1.)		St	art Date: 2	22/03/2012	Required Date: 05/04/201	12
•							start Qty: 1		Required Qty: 1.00	_
D3595-063-450	<b>M</b> C . 1	NI.		220					A A	
	Manufactured	No		230	Each	130.1095	2	2	- []	
*D3595-063-	450*						**		W/ 12.05.08	
			<b>Location</b>		Loc Oty	Loc Code				
			LG051		88					
			8016	1	88				<del></del>	
			MAT052		42.109474				_	
			6735		2				_	
	Ab - 111		6889		6				_	
•	B# 80161		7011 7135		0.56 0.2				_	
			7411		0.349474				_	
			7559		1				Political Property Control of Con	
			7767		32			+	<del>_</del>	
MS20601-AD4W8	Purchased	No		230	Each	162.0000	14	14		
*MS20601-A	D4\M8*						**	4	AB 12-5-10	
RIVET .			51322 12	1255			ž	(14)	110 12-3-10	
•			<u>Location</u>		Loc Qty	Loc Code	,			
			LG051		162					
			. 1210	17	162				<del>_</del>	
MS21920-22	Purchased	No		230	Each	80.0000	4	4		
*MS21920-22 Clamp(per MIL-DTL-8783C)	2*						**		# 12-5-10	
			Location		Loc Qty	Loc Code				
			LG		14					
			11954	45	14				_	
			LG050		66				_	
			11620		7					
			11750		1				_	
			11818		8			-(1)	_	
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Page 3

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Part No	:	P	AR #:	_ Fault Category:	NCF	l: Yes	No DQ	A:	_ Date: _		
		Resolution:		Disposition:	QA:	N/C C	losed:		Date:		

NCR:		WORK ORDER NON-CONFORMANCE (NCR)										
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Work Order ID: 82114		*8	2114*							
Parent Item: D407-667-205		*[	407-667-2	205*				,		•
Parent Item Name: Crosstube Aft						Sta	rt Date:	22/03/2012	Required Dat	e: 05/04/2012
						Sta	ırt Qty:	1.00	Required Qt	
MS21920-25	Purchased	No		230	Each	161.0000	2	2	/}	
*M\$21920-25* Clamp(per MIL-DTL-8783C)							**		W/ 12.	05.08
			<b>Location</b>	L	oc Qty	Loc Code				
			LG050		161				_	
			116264		2				_	
			117998		4				_	
			118142 119339		4				_	
			119746		2 2				-	
	-		120475		47				_	
			120920		100				_	
AN5-10A	Purchased	No	,	250	Each	358.0000	10	10 🕏	_	
*AN5-10Å*							**		23	
Bolt			<b>Location</b>	<u>L</u>	oc Qty	Loc Code				
			ST337		358					
			118191		80				-	
			120630		30				- -	
			120717		50			120717	15~	
AN5-32A	Dumahasad	No	120770	250	198	240.0000	^		_	
+ 4000	Purchased	NO		250	Each	248.0000	-4_	4 🗴		
Bolt Bolt						•	**		JB	12/05/
			Location	<u>L</u>	oc Qty	Loc Code				, ,
<b>/</b> ·			ST339		248				<b>_^</b>	
. \			119328		93			119328	* 4 W	
<b>\</b>			119862		50				-	
			120423		75				-	
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DATE	STEP	Description of NC Section A	Initial Chief Eng	Corrective Action Action Description	Section B	Sign & Date	Verific Secti		Approval Chief Eng	Approval QC Inspector
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Page 5

Work Order ID: 82114

Parent Item:

D407-667-205

Parent Item Name: Crosstube Aft

\*82114\*

\*D407-667-205\*

**Start Date: 22/03/2012** 

**Required Date:** 05/04/2012

Start Qty: 1.00

Required Qty: 1.00

Purchased

No

250

Each

70.0000

Loc Code

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Purchased

No

Loc Qty Location ST339 70 119328 20 120422 50 250 Each

1,570.000

119109 3 00

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12/5/01/

<b>Location</b>	Loc Qty	Loc Code
ST300	1570	
116105	5	
116548	43	
117611	42	
119109	1480	

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W/O:			V	VORK ORDER	CHANGES				,	• •
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Part No		PAR #:	Fault Ca	itegory:	NC	R: Yes	No <b>DQ</b>	A:	_ Date: _	
	R	esolution:	Disposit	tion:	QA	: NC Ck	osed:		Date: _	
NCR:		V	VORK OR	DER NON-CON	IFORMANCE	E (NCR	)	,		
DATE	STEP	<b>Description of NC</b> Section A	Initial Chief Eng	Corrective Action Des	cription	Sign & Date		cation on C	Approval Chief Eng	Approval QC Inspector
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DART AEROSPACE LTD	Work Order:	82114		
Description: Crosstube High Aft (407)	Part Number:	D407-667-205		
Inspection Dwg: D407-667-245 Rev: F		Page 1 of 1		

Min

Max

**Required Dimension** 

1	required Difficusion	141111	IVICA	l e e e e e e e e e e e e e e e e e e e
	Height	23.39	23.65	
,	1/2 Span	45.79	46.05	
	Angle	54	56	
	Total Span	91.58	92.100	
ဖ	.169 ÷ 3.975		9.178:3.93	4
	4.7%		9.178 ± 3.93 4.5%	
			2.04	4
	1.882		2.6% 1.872	
23490/				23.500
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	Comments		
SIDE AZ 4.7% CM	whim @ 32	PANES	
5/00 Bz 45% C	rushin @31	Passes	
	A	00	(). M
	HClorithe	U 12.05.53 (	1510 n
		1 , , , ,	7
QC15 Inspection	2		
Date	1715/03		

Rev	Date	Change	Revised by	Approved
Α	07.02.06	New Issue	KJ/JM	
В	09.06.22	Dwg Rev updated	KJ	
С	11.08.22	Dimensions updated	KJ iA	
D	11.09.30	Dimensions updated	KJ (X	JE .

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# **Dart Aerospace Ltd**

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DATE	STEP	Description of NC Section A	Initial Chief Eng	Corrective Action Section Action Description Chief Eng	ion B	Sign & Date	Verific Section		Approval Chief Eng	Approval QC inspector
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l te m	QTY -245	PART NUMBER	DESCRIPTION
1	х	D407-667-245	CROSSTUBE ASSEMBLY (407 HIGH AFT)
2	1	D6011-115	CROSSTUBE
3	2	D2856-400-773	ABRASION STRIP
4	2	D2873-043	NUT PLATE
5	2	D2873-045	NUT PLATE
6	1	D2894-1	SUPPORT
7	2	D3190-1	CHAFING SHIELD
8	2	D3595-063-430	RUBBER CUSHION
9	14	MS20601AD4W8	RIVET (OR NAS93028-4-8)
10	4	MS21920-22	CLAMP
_11	2	MS21920-25	CLAMP (OR MS21920-24)
12	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II. CLASS 2 ADHESIVE)

#### **GENERAL NOTES:**

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1) MATERIAL: MANUFACTURED FROM D6011-115

MAI ERIAL: MANUFACIUNED FROM DBD11-115
 FINISHED LENGTH = 112.914.0.20

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
 PAINT OUTSIDE PER DART QSI 005 4.2

3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.

- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
  IDENTIFICATION: SCRIBE DART PART NUMBER 'D407-667-245" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- PART IS SYMMETRIC ABOUT CENTERLINE.
- RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.

  12) INSTALL D2894-1 CENTER SUPPORT USING A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6399 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS WITH D3595-063-430 RUBBER CUSHIONS TO SECURE D2894-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE CROSSTUBE
- NOTE: MS21920-24 CLAMPS CAN BE ÜŞED TO ACCOMMODATE VARYING DIAMETERS.
- ENSURE THERE IS A MINIMUM OF 1.5 THREADS IN SAFETY ON THE NUTS.

  14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) INSTALL D2856-400-773 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE. PER OSI 035.
- 16) INSTALL D3190-1 CHAFING SHIELDS SO THAT OVERLAP IS ON BOTTOM SIDE OF CROSSTUBE OPPOSITE D2894-1 SUPPORT.
- 17) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

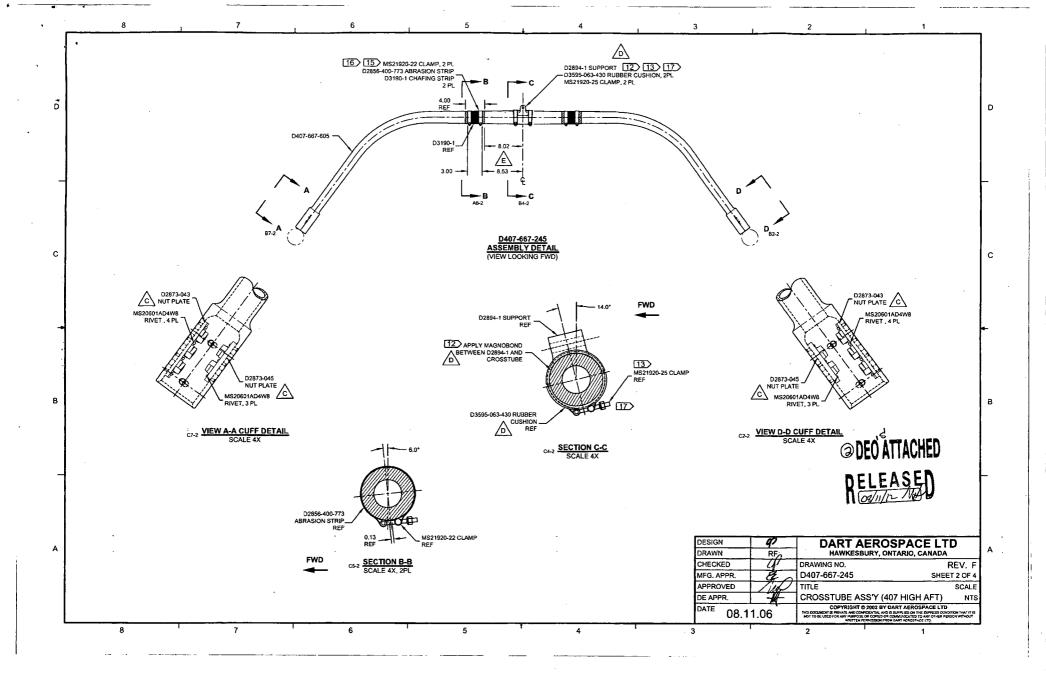
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A REV.	ADD CHAFING SHIELD  NEW ISSUE  DESCRIPTION	CP CP BY	03.05.21 02.05.13 DATE
c	ADD HOLES AND NUT PLATES FOR COMPATIBILITY WITH BHT/AA SKIDTUBES	PH	05.07.26
D	ADD VIEW FOR OEM SKID HOLES, ROTATE ORIENTATION OF CLAMPS SECTION F-F, REMOVE -851 ABRASION STRIP, ADD MAGNOBOND 6398, ADD CUSHION	РН	07.02.07
E	8.02 AND 8.53 WERE 8.40 AND 8.90 (ZN DS-2); REORGANIZED VIEWS AND REFORMATED DRAWING TO CURRENT STANDARDS. REASONS: CLAMPS MOVED 0.376 TOWARD OL TO ELIMINATE INTERFERENCE WITH AIRCRAFT MOUNTS. REFERENCE: PAR#08-21 AND ECN#1225	мв	08.07.24
F	REFORMAT NOTES TO NEW STANDARDS (ZN 88-1); RELOCATED FLAG # 6 (ZN A8-3) PER NOR 210; REMOVED REF. & ADD TOLERANCES (ZN C6-3, C4-3 & D2-3)	RF	08.11.06

DESIGN	4	DARTAEROSPACE LTD					
DRAWN	RF2	HAWKESBURY, ONTARIO, CANADA	_				
CHECKED	a	DRAWING NO.	REV. F				
MFG. APPR.	8	D407-667-245 SHEE	T 1 OF 4				
APPROVED	111	TITLE	SCALE				
DE APPR.	74-	CROSSTUBE ASSY (407 HIGH AFT)	NTS				
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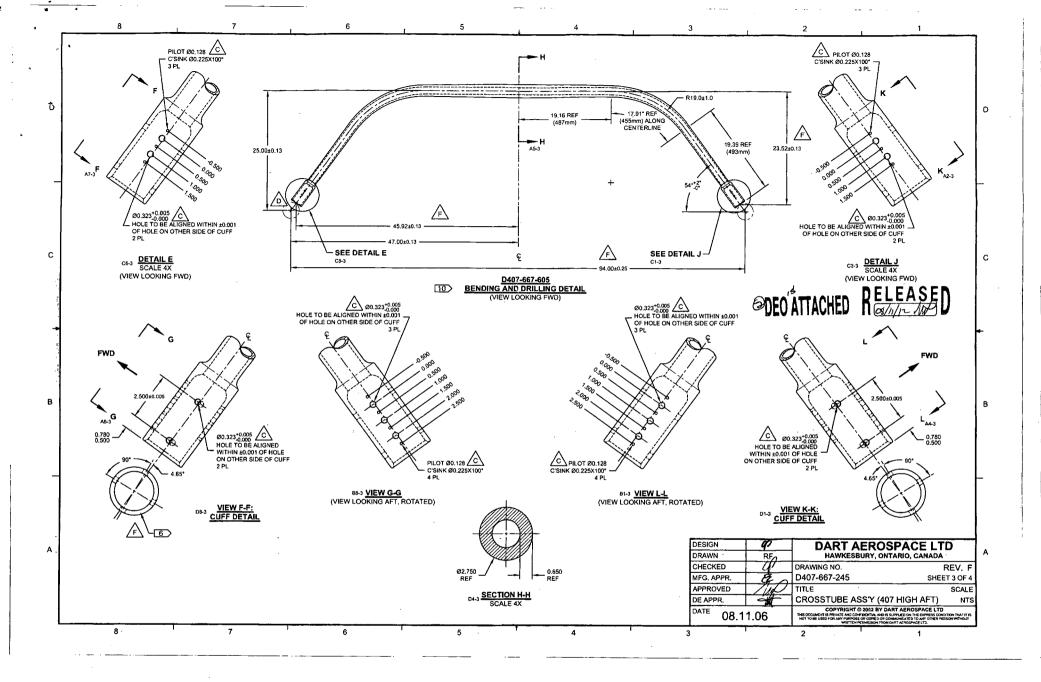
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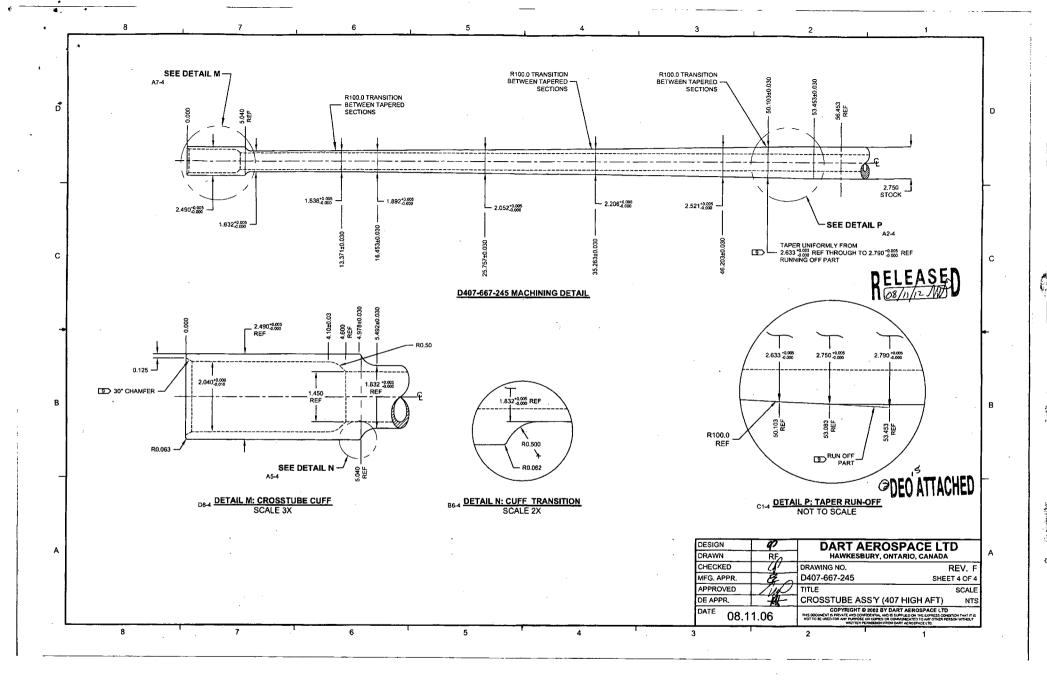
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DRAWING NO.	TITLE		REV. F	DART AE	ROSPACE LTD	D.E.O. NO	D	SHEET NO.	SCALE
D407-667-245 /	CROSSTUBE AS	SSY (407 HIGH			ERING ORDER	1.	67-245-F-1	SHEET 1 OF 2	
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DATE 11.04	.08 DAT	E 11.04.	12	DATE	11.04.12	DATE	11.04.12	DATE 11.04.12	

PURPOSE:

REMOVED ABRASION STRIP IN FAVOR OF A THIN LAYER OF PROSEAL 890.

#### **CHANGE:**

PARTS LIST IS AMENDED AS FOLLOWS:

<u>IS:</u>

item	Qty -245	Part Number	Description
3	0	D2856-400-773	ABRASION STRIP

#### WAS:

1 2	2	D2856-400-773	ARRASION STRIP
		02030-400-773	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

#### NOTES 2 AND 15, SHEET 1 ARE AMENDED AS FOLLOWS:

IS:

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
MASK UNDERSIDE OF CROSSTUBE AS SHOWN (HATCHED AREA) AND

PAINT OUTSIDE PER DART QSI 005 4.2 REMOVE MASKING AND APPLY CLEAR COAT

15) APPLY A THIN COAT OF PROSEAL 890 ON INSIDE CONCAVE SURFACE OF D3190-1 CHAFING SHIELDS AND LET CURE PER MANUFACTURER'S INSTRUCTIONS. INSTALL PROSEALED D3190-1 CHAFING SHIELDS ONTO CROSSTUBE BY APPLYING A THIN COAT OF PROSEAL 890 ONTO CROSSTUBE. BE SURE TO ELIMINATE ANY AIR GAPS.

#### WAS:

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2

15) INSTALL D2856-400-773 ABRASION STRIP WITH A 0.13 REF GAP ON BOTTOM SIDE OF CROSSTUBE PER QSI 035.



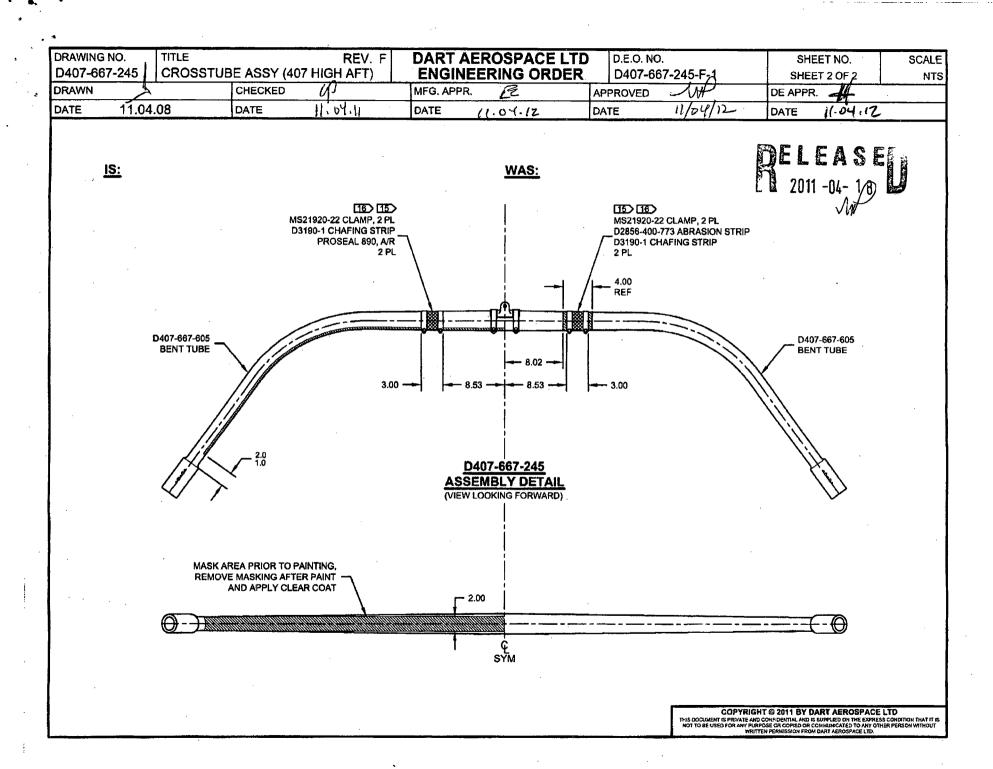
HIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR CONMUNICATED TO ANY OTHER PERSON WITHOUT

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Part No:	PAR #:	Fault Category:	NCR: Yes No DQA:	Date:
Resolution	on:	Disposition:	QA: N/C Closed:	Date:

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DRAWING N	NO. TITI	E	REV. F	DART AEROSPACE	LTD D.E.O. NO.	SHEET NO.	SCALE
D407-667	'-245 CR	OSSTUBE ASS'Y	(407 HIGH AFT)	ENGINEERING ORD	ER D407-667-245-E-2	SHEET 1 OF	NTS
DRAWN	P	CHECKED	ASS	MFG. APPR.	APPROVED WP	DE APPR.	
DATE	11.09.07	DATE	11.09.19	DATE /(-09-19	DATE 11.08.19	DATE 11.09.19	

#### **PURPOSE:**

REPLACE MAGNOBOND WITH 3M DP460 SCOTCH-WELD EPOXY ADHESIVE

### **CHANGE:**

IS:

-2	245		Description
12 A	A/R	SCOTCH-WELD DP460	EPOXY ADHESIVE, 3M SCOTCH-WELD

#### WAS:

12	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023
			ADHESIVE (TEXTRON/BELL SPEC. 299-947-100,
			TYPE II, CLASS 2 ADHESIVE)

NOTE 12 & 17. SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) INSTALL D2894-1 CENTER SUPPORT USING A 0.04" TO 0.07" THICK LAYER OF SCOTCH-WELD DP460 PER QSI 015. LET CURE FOR 24 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER ADHESIVE HAS CURED FOR 24 HOURS.

#### WAS:

- 12) INSTALL D2894-1 CENTER SUPPORT USING A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.



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Dart Aeros	pace Ltd
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Duit Aci	ospaoi	Liu								•
W/O:			W	ORK ORDER CHANGE	S					
DATE	STEP	PROCI	EDURE CH	ANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
			•							
										•
:										
-					ļ					
∘Part No	•	PAR #:	Fault Cat	egory:	NCF	R: Yes	No DQ	A:	Date: _	
						QA: N/C Closed: Date:				
NCR:		WC	ORK ORI	DER NON-CONFORMAL	NCE	(NCF	l) _		•	
D.4.T.F	0.755	Description of NC		Corrective Action Section	n B		Verific	ation	Approval	Approval
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng		Sign 8 Date	Secti		Chief Eng	QC Inspector
• • • • • • • • • • • • • • • • • • • •			÷					-		
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	10 Sec. 24									
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ACUREN	

P- 05648

LIQUID PENETRA	NT TEST REPORT
ACUREN	. 1
1) ADT 1-2-50 11	PAGE PAGE
CLIENT DAK ACLOSPACE DATE	MAY-04-000 TIME AM O PM O
	EN JOB NO. 188-12-CO(2)
	VO NO
	(LOCATION AS ADDRESS
ACCE	PTANCE STD. ASTM14/7/USD38 REV./DATE 2005
PROJECT PLANT INS	Pedico ON 3 ERSINBE X X MOTINE MENTALITIE
- SET BELOW	flx tube
SCOPE PARRIAGO A WET ET 127 2007	RIAL ALE DE ALEXALIZAN/SIS THICKNESS 11/A
SCOPE PERFERENCE A WET FLOOD PT OF 100% OF	THE EXPERING SERFACE OF ITEMS HONTOWN
TEST DETAILS	
	ATER WASH Q SOLVENT REMOVABLE POST FMULSIESED
	ATER WASH SOLVENT REMOVABLE POST EMULSIFIED CLIGHT S/N / 3748 OUTPUT > 1000 µ W/cm² AMBIENT < 2 fc
PENETRANT PEMOVED IN MINIMUM DWELL TIME 75 MIN. LIGHT	NG EQUIP. 🗓 FLASHLIGHT 🚨 TROUBLELIGHT 🚨 OUTPUT>100 fc @ SURFACE
MIN. OTHE	7
DEVELOPER TYPE 12 NON AQUEOUS AQUEOUS DRY	METER S/N 1098866 CAL DUE DATE COTOS POR
TEST SURFACE SURFACE CONDITION	
SURFACE CONDITION         Image: As Ground Surface Temperature         Image: As Ground Surface Temperature         Image: As Welded Surface Temperature	CHINED ☐ SHOT BLASTED ☐ CLEAN BARE METAL ☐ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F
RESULTS- ( METRIC I IMPERIAL)	2 10 0/30 1 10 32 C/125 F
3 13 3	MID D4137-1 REVID MERIN EMID D4138-1 Polis Provin
71	DID D206-667-101
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	101-733-3060 (1x
7 100 W.C. 10 04 704 1 + 77	21 ID 3407-667-105
7	wid 2407-667-105
777	mID 2412-664-203
	M D) D412-664-263
	21 ID 1407-667-205
NOTELEVANT INDICATION WAS DETECTED AS TER	
APPLICABLE STAD ARD	12.05-04
Scope of Services The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circum, that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on inferpresentations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator of the owner/operator of the owner/operator information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services in performing the services possibled. Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services.	omation and assimptions suppried by the ownerroperation and are not intended nor can they be construed as too retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the referred to herein exceed the amount paid for such services.
n performing the services provided. Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circums uplied, is made or intended by Acuren Group Inc.	ances by others performing such services in the same or similar locality. No other warranty, espressed or
SIGNATURES	fi.
CLIENT REPRESENTATIVE Matthews Musclack Mouth.	Whendow DTR# E84955
ECHNICIAN (SIGNATURE):	GNATURE REPORT
VAME (PRINT): YUES INSIGER)	REVIEWED BY:  NAME INITIALS
CGSB LEVEL SNT LEVEL CGSB LEVEL CGSB REG. NO CGSB REG. NO	ECHNICIAN INTEREST

## Daily Time Report

E-84955

orm dated September 2010

Client:	ADT	" Al	Pe	(DAI	12-												_		ted September 2010
Contact:	1. DA	1 (1)	AN	74(	MATT			-	Job #:						Date:	MA	1000	1 -	20121
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Description:	7-16	NET	F	Luc					P.O. #:					1	W.O #:	/8	1 - 8	3-6	(0121
Report #'s:	P.0	564	(8					_ Ve	ehicle #		6	36,		Can	nera #:	•			
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Î / Name		Specie Tech.	CEDO	Assi	Sta Tin			147 1 . 1	05		LOA	MTO	kno	wn) or	type o	t Motit			Readings
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Film:			Pcs.	2 3/4 2		Re	-hillable (	expenses:			-					ACUREN 1			
			Pcs.	3 ½ x 4 ½ x				<b>p</b>						Cambrid Cantley,					9) 622-1326 9)-827-3513
				14" x		E	quipmen	t charges:						Cornwal		. ,		•	3) 931-2777
			Pcs.						all a	H.	Maar	doch	8	Gaspé,		. ' '			8) 392-4114
Consumables (cans / litres):	UT	3	PT		МТ	CIIE	ent Repre	sentative:	111/1000	1/19	I WIANG	G CIN	<b>2.</b>	Halifax, Jonquie		` '			2) 445-5090 8) 542-5494
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NOTES:														Montrea North Ba		, ,			0) 492-5682 5) 476-6683
														Oakville	-	, ,		•	5) 825-8598
													_	Pickerin	-				5) 839-5641
														Port Elg St. John					9) 389-6799 9) 753-7011
					,			· · · · · · · · · · · · · · · · · · ·						Sarnia,		(519) 33	36-3021 ∘ F	ax (51	9) 336-8220
														Sherbro Sudbury	oke, QC	. ,		,	9) 346-6828 5) 522-9926
														,	r Bay, ON	. ,		•	7) 577-2017
														Timmins				-	5) 267-2855
		23/8/02/02/04				processary processor	egaginanda digi ayla asa	and of a solicitation of a			and the second second		PF 718	Val D'O	r, QC	(819) 85	6-6789 o F	ax (81	9) 825-9564

**Dart Aerospace Ltd** 

W/O:		WORK ORDER CHANGES											
DATE	STEP	PROCEDURE CHANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector						
. 12.5,3	20/	Apply clear cost to entire # outside surface of crustuley except mask off area of support.				12.65.64 QS1642							

Part No:	PAR #:	Fault Category:	NCR: Yes No	DQA:	Date:
Resolution:		Disposition:	QA: N/C Closed	-	Date:

NCR: WORK ORDER NON-CONFORMANCE (NCR)									
	Description of NC		Corrective Action Section B	Verification	Approval	Approval			
DATE STEP	Section A	Initial Chief Eng	Action Description  Chief Eng	Sign & Date	Section C	Chief Eng	QC Inspector		
		·							
						<del></del>			
						, !			
	STEP	STEP Description of NC	STEP Description of NC Section A Initial	STEP Description of NC Section A Initial Action Description	STEP Description of NC Section A Initial Action Description Sign &	STEP Description of NC Corrective Action Section B Verification Section A Action Description Sign & Section C	STEP Description of NC Section A Possible Section A Possible Section A Possible Section C Sectio		

# REFERENCE ONLY

### DART AEROSPACE LTD.

IIN-D206-667

Page 17 of 19

#### **PARTS LIST** 5.0





Item	Qty -101	Qty -201	Qty -103	Qty -203	Qty -105	Oty 205	Part Number	Description
	Х					2	D206-667-101	CROSSTUBE INSTALLATION,
								206A/B HIGH FWD
		X					D206-667-201	CROSSTUBE INSTALLATION,
								206A/B HIGH AFT
			Х				D206-667-103	CROSSTUBE INSTALLATION,
								206L/L-1/L-3/L-4 HIGH FWD
				X			D206-667-203	CROSSTUBE INSTALLATION,
								206L/L-1/L-3/L-4 HIGH AFT
					Х		D407-667-105	CROSSTUBE INSTALLATION, 407 HIGH FWD
						Х	D407-667-205	CROSSTUBE INSTALLATION, 407 HIGH AFT
•								
1	1						D206-667-141	CROSSTUBE ASSEMBLY, 206A/B HIGH FWD
2	···	1		-			D206-667-241	CROSSTUBE ASSEMBLY, 206A/B HIGH AFT
3	-	<del>'</del>	1	-		-	D206-667-143	CROSSTUBE ASSEMBLY.
3			' '				,D200-007-143	206L/L-1/L-3/L-4 HIGH FWD
4	<del>                                     </del>			1			D206-667-243	CROSSTUBE ASSEMBLY,
4				'			D200-007-243	206L/L-1/L-3/L-4 HIGH AFT
5		ļ		<del></del>	1	ļ <u>.</u>	D407-667-145	CROSSTUBE ASSEMBLY, 407 HIGH FWD
. 6	-				<u>'</u>	1	D407-667-145	CROSSTUBE ASSEMBLY, 407 HIGH AFT
. 0	ļ					<u> </u>	D407-007-243	CROSSTOBE ASSEMBLT, 407 HIGH ALT
	+		+0		*2		D2004 4	CUDDORT
10	*2	*2	*2	10	-2		D2891-1	SUPPORT
11	<u> </u>		<u> </u>	*2	ļ		D2892-1	SUPPORT
12						*1	D2894-1	SUPPORT
13	*4	*4	*4		*4		D3595-063-395	RUBBER CUSHION
14	<u> </u>			*4			D3595-063-450	RUBBER CUSHION
15	ļ					*2	D3595-075-430	RUBBER CUSHION
16	*4	*4	*4		*4		MS21920-20	CLAMP
17				*4		*4	MS21920-22	CLAMP
18	<u> </u>		<u> </u>			*2	MS21920-25	CLAMP (OR MS21920-24)
19	4	4	4		4	L	AN5-32A	BOLT
20				4		44	AN5-34A	BOLT
21	4	4	4	4	4	4	MS21042L5 (	NUT (OR MS21042-5)
22	8	8	8	8	8	/ 8	NAS1149C0563J	WASHER (OR AN960JD516)
23						*2	D3190-1	CHAFING SHIELD
	1							
40	*2		*2	*2	*2	*2	D2873-043	NUT PLATE
41	*2		*2	*2	*2	*2	D2873-045	NUT PLATE
42	<del>                                     </del>	2	<del>-</del> -	<del>-</del>	<u> </u>	<del>-</del>	D2872-043	NUT PLATE
43	<b> </b>	2	<del>                                     </del>	<del>                                     </del>			D2872-045	NUT PLATE
44	10		10	<del>                                     </del>		-	AN5-7A	BOLT
45	1-10	10	<del>  '</del>	10	10	10	AN5-10A	BOLT
46	4	10	4	''	4	200	AN5-30A	BOLT
47	<del>-</del>	<del>  ''-</del>	┝╌	4	<del>                                     </del>	14	AN5-32A-	BOLT
	+	<del> </del>	12	+	<b>_</b>	7 4	AN970-4	WASHER (OPTIONAL)
48	-	-	12	-				
49	1.0	6	<u> </u>		<u> </u>	4.0	MS21042L5	NUT (OR MS21042-5)
50	1.0	12	10	10	10	/10	NAS1149C0563J	ZWASHER (OR AN960JD516)
	ļ		L					
60		1	L	L		L	D3039-3	CENTER DRILL (TOOLING, NOT INSTALLED) 141/-143/-241/-243 & D407-667-145/-245

REFERENCE ONLY. PARTS ARE INCLUDED IN D206-667-141/-143/-241/-243 & D407-667-145/-245" ASSEMBLIES ABOVE

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Revision: **D** 

Date: 11.05.01

Change Record

Part Number <u>D407-667-265</u>
Description <u>407 AFF</u> CROSS TUBE

Page \_ l \_ of \_ \_ l

001 02.00 05 05 05 05 05 05 05 05 05 05 05 05 0		`		
007 05.05.24 05 PER IN-DIAL-667 Rev F  103 05.09.07 PS  DR-D206-667 Rev. L/MOL-D26-667 Rev. E  005 07.11.07 PS  DR-D266-667 Rev. L/MOL-D26-667 Rev. E  005 07.11.07 PS  DR-D266-667 Rev. F (D3894 Rev. C)  DA -D266-667 Rev. F (D3894 Rev. C)  DA -D26	Chg.	Date	Ву	
002 03.05.24 D5 PET DR-DEG-667 Rev. F  D03 05.09.09 H3 DR-D206-667 Rev. H (2001 Completions)  D04 07.02.14 H3 DR-D206-667 Rev. F (D 3894 Rev. C)  D05 07.11.07 H3 DR-D206-667 Rev. F (D 3894 Rev. C)  D06 08.08.18 H3 D407-667-245 Rev. E (ECN 1225)  D07 11.04.19 H3 D519550 Rev. A, D2894 Rev. E  D519550 H2 A, D2894 Rev. E  D50-D407-667-245-F-2 (ECN 11-643)	0001	02.06.04	911	BOR DR- 0206-667 REV. E
DR-D206-667 Rev. H (RM COMPANION)  DV-D206-667 Rev. H (RM COMPANION)  DV-D206-667 Rev. F (D 2894 Rev. C)  DX-D226-667 Rev. F (D 2894 Rev. C)  D407-667-245 Rev. E (RCW 1225)  D407-11.04 R S D519550 Rev. A DBD-D407-667-F-1 (RCW 11-551)  DS195514 Rev. A D2894 Rev. E  DE0-D407-667-245-F-2 (ROV 11-648)				
004 07.92.14 4	002	03.05.21	DS	PER DR-0706-667 Rev-F
004 07.92.14 4				
004 07.2.14 A DR-D206-667 Rev. F (D 3.894 Rev. C)  005 07.11.07 B D407-667 Rev. F (D 3.894 Rev. C)  006 08.08.18 B D407-667-245 Rev. E (EGU 1225)  007 11.04.9 B D519550 Rev. A, DED-D407-667-F-1 (ECN 11-551)  008 11.09.29 B DEO-D407-667-245-F-2 (EGU (1-648)	003	05.09.09	KS	DR-D206-667 Rev. H (25M comptages)
005 07, 11.07 B DE-D26-667 Rev. F (D2894 Rev. c)  006 08.08.18 B D407-667-245 Rev. E (ECN 12-25)  007 11.04. R D519550 Rev. A, DED-D407-667-F-1 (ECN 11-551)  008 11.09.29 D519574 Rev. A, D2894 Rev. E  DED-D407-667-245-F-2 (EON (1-643)			<u> </u>	
005 0711.07 \$ DE-D26-667 Rev. F (D2894 Rev. C)  006 08.08.18 \$ D407-667-245 Rev. E (ECW 1225)  007 11.04.19 \$ D519550 Rev. A, DED-D407-667-F-1 (ECW 11-551)  008 11.09.29 \$ D519514 Rev. A, D2894 Rev. E  DEO-D407-667-245-F-2 (ECW 11-643)	004	07.92.14	XL	DR-D206-667 Rev. L/MDL-D206-667 Rev. E
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DS19550 (w. A. DED-DUOT-CUT-F-1 (ECN 11-551)  DS19574 Rev. A. D2894 Rev. E DEO-DUOT-CUST-245-F-2 (ECN 11-643)			0	
DS19550 (w. A. DED-DUOT-CUT-F-1 (ECN 11-551)  DS19574 Rev. A. D2894 Rev. E DEO-DUOT-CUST-245-F-2 (ECN 11-643)	006	08.08.18	**	D407-667-245 POLE (BC) 1225)
008 11.09.29 DS19574 Rev.A. D2894 Rev. E DEO-DUOT-667-245-F-2 (FON 11-643)			10	2407-001 243 PERIL (CIN 1223)
008 11.09.29 DS19574 Rev.A. D2894 Rev. E DEO-DUOT-667-245-F-2 (FON 11-643)	007	11.04 R	45	TRIGSED PO A TOP DUM LIME I
008 11.09.29 DS19574 Rev.A. D2894 Rev. E DEO-DUOT-667-245-F-2 (FON 11-643)		110-1.1.	<del>-()</del>	1550 tel A. 000-040 (-00)-F-1
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